

DECUS NO.

8-382

TITLE

READABLE HIGH SPEED PUNCH COPIER

AUTHOR

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COMPANY

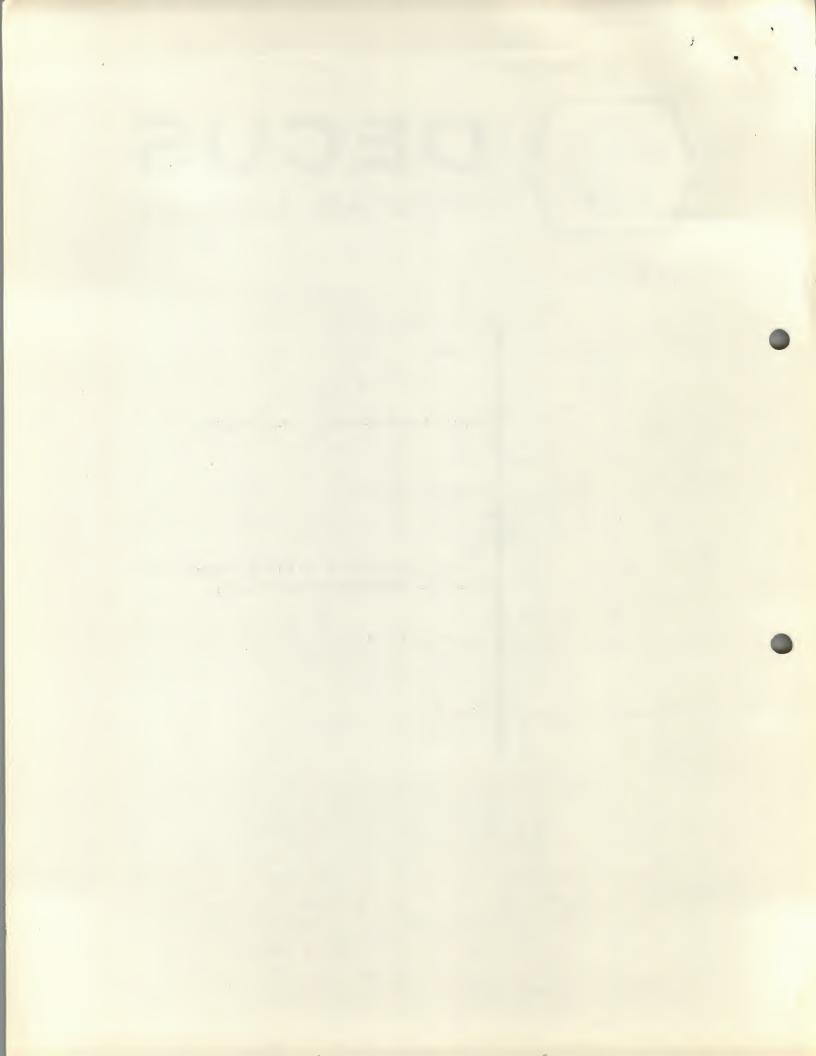
Collins Radio Company of United Kingdom, Ltd. Hounslow, Middlesex, United Kingdom

DATE

September 19, 1970

SOURCELANGUAGE

PAL III



DECUS Program Library Write-up

DECUS NO. 8-382

Object

To interpret ASCII characters into a readable binary format. It accepts 40 ASCII characters but space has been left for the remainder of the ASCII set. Used in conjunction with the high speed reader, a readable leader can be produced and attached to a tape to be copied.

This program was originally produced with the object of producing a form of Kimble Itag. By punching readable references on all library tapes, a stock check program could be used to check all the tapes held in a library, by reading, say the first six inches of tape. Comparing the readout with a list held in store and punching out a list of missing tapes. This stock check was being formulated, but, unfortunately, I lost access to a DEC machine.

Operating instructions.

Starting address 0200.

High speed punch/reader on.

Teletype on-line.

Depress start on PDP 8

Teletype keyboard can now be used. Depressing a key will result in the character concerned being punched by the high speed punch.

When all required characters have been punched, place tape to be copied in the high speed reader. Depress ALTMODE key on the teletype.

Six inches of blank tape will be produced and the tape will be copied.

Stop the computer manually when the trailer is reached otherwise a spurious character will be punched.

Restarting at 0200 for the next job.

Restrictions.

This program is not complete. It does what it is supposed to do but final debugging was mm not completed. The program was in the couse of being modified so that when it read 50 (8) blanks the reader would halt. This was being done in subroutine CON, but this does not appear to work. There is also a fault which is only apparent intermittantly. On depressing ALTMODE the leader is produced but

instead of reading, the computer halts. An error in the listing is immediately apparent *542 should be *543 and in the character table from location 0760 l should be added to the contents of each location. ie 0760 0543 0761 0546 0762 0552

At present the above fault makes no difference to the working of the program, because 0537 is a blank.

Program description

The program commences with initialising. The character is read in from the keyboard stored and then checked for CRLF (which are omitted) and ALTMODE. If none of these, the LH six bits are masked out and added to SOC the character address pointer. The contents of the resultant address determine the address of the start of the appropriate vector sequence. This address is stored in MKAD and the contents of it are stored in CHARL. This is rotated six bits right and masked, to remove the second vector. The first vector is punched. ChARL is masked to remove the first vector and the second is punched. The Mark address is incremented and the process is repeated until six vectors have been punched.

Receipt of ALTMODE produces a JMP to LDR, whereon 106 (8) blanks are produced at the end of which any tape in the reader will be read.

Alteration of character shape.

Character design is a matter of personal choice and ingenuity.

Above is the character representation for the letter A

The vector sequence is 7611
1111

7600

By following the above format any character can be packed six vectors to three words.

The Matrix is 6 x 5. The last vector 00 gives a space between characters.

The principle is adaptable and further reference can be made to Mr. Murray's excellent character generator program for the KV8 graphic display.

As explained before, the author no longer has access to a DEC PDP 8 but any assistance required in connection with this and/or the Stock check program is readily available from the author.

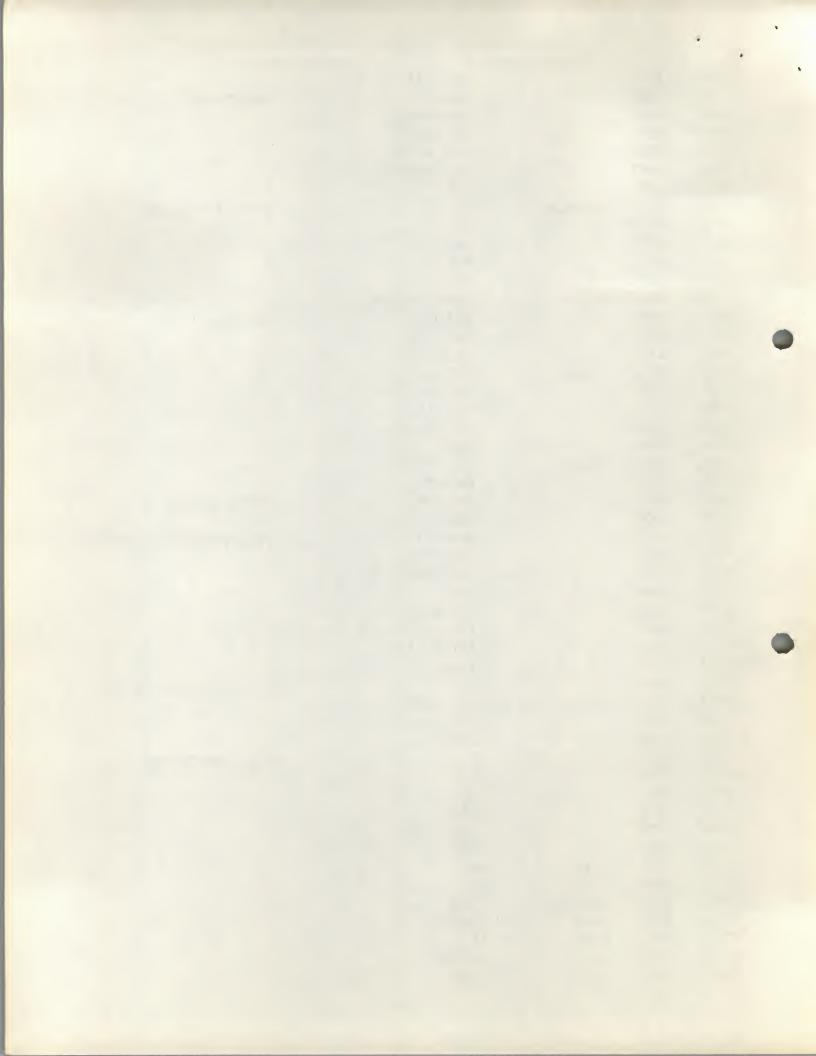


/PROGRAM TO PUNCH ON HSP LEGIBLE CHARACTERS /AND COPY PROGRAM

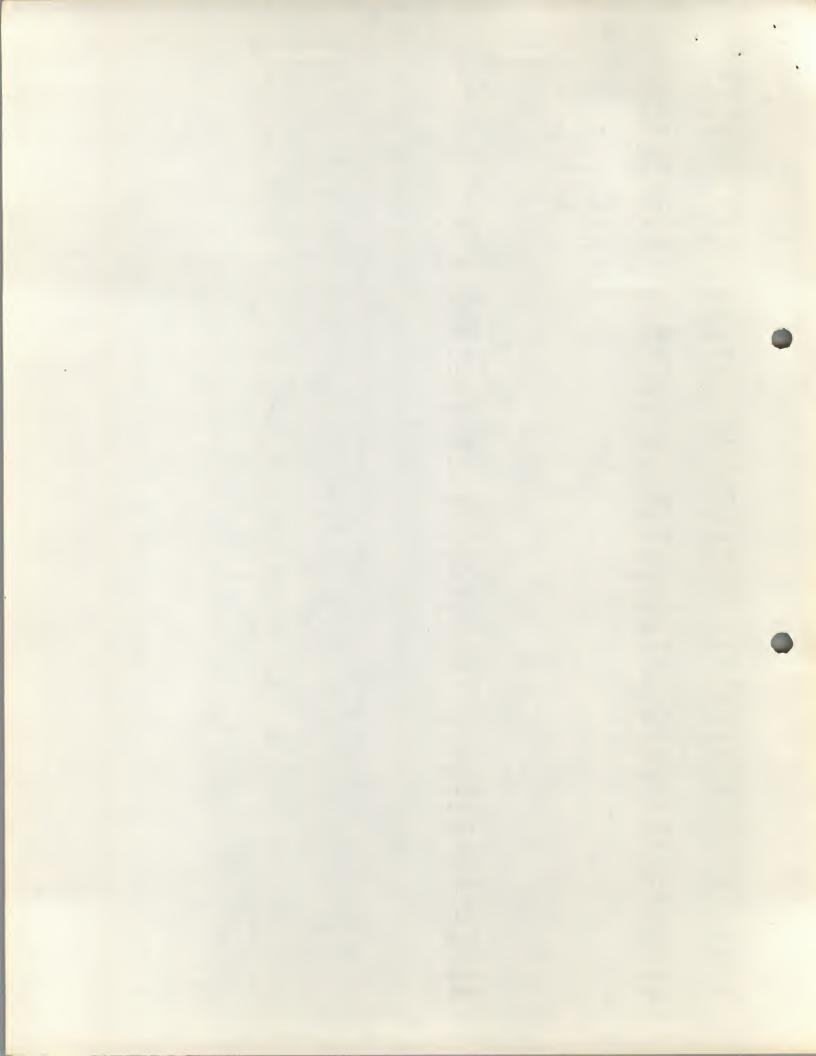
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9291 6946 TLS 9292 6972 6972 6973 9293 6974 736 74D 1 BUFF 9295 3337 DCA CHAR 9296 6931 NEXT, KSF GET A CHARACTER 9297 5296 JMP1 9219 6936 KRB 9211 6946 TLS 9212 3737 DCA I CHAR STORE IT 9213 1737 TAD I CHAR 9214 1349 TAD M215 IS IT CR 9215 7659 SNA CLA 9217 7190 CLL 9220 1737 TAD I CHAR NO, IS IT LINEFEED 9221 734 TAD M212 9222 7659 SNA CLA 9222 7659 SNA CLA 9223 5296 JMP NEXT YES GET NEXT CHAR 9221 1341 TAD M212 9222 7659 SNA CLA 9223 5296 JMP NEXT YES GET NEXT CHAR 9224 7190 CLL 9225 1737 TAD I CHAR 9226 1335 TAD MODE NO IS IT ALTMODE 9227 7659 SNA CLA 9238 5275 JMP LDR YES PRODUCE LEADER 9231 7199 CLL 9232 1342 TAD C3 9233 3344 DCA VCNT INITIALIZE COUNTER 9234 1737 TAD I CHAR 9235 69345 AND MASK77 STRIP CHARACTER 9236 3347 DCA MKAD GET CHARACTER 9240 7299 PUCH, CLA 9241 5296 JMP NEXT 9244 7750 TAD I MKAD 9245 3347 DCA PUND 9246 7299 PUCH, CLA 9255 7912 RTR 9255 9345 AND MASK77 REMOVE 2ND VECTOR 9256 9365 PUCH PUCH PUNCH	dadd	7200		CIACII	/INITIALIZE
			START,		/ INTIALIZE
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9294 1736					
Decay Deca				,	
Decidio Deci					
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Ø21			NEXI,		/ GET A CHARACTER
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\$\frac{\text{9216}}{\text{9217}} \ \$\frac{\text{52\text{96}}{\text{9217}}}{\text{71\text{96}}} \ \$\frac{\text{CLL}}{\text{CLL}} \ \$\frac{\text{71\text{96}}}{\text{922}} \ \$\frac{1737}{1737} \ \$\text{TAD I CHAR} \ \$\frac{\text{NO, IS IT LINEFEED}}{\text{9222}} \ \$\frac{75\text{9}}{\text{9223}} \ \$\frac{52\text{96}}{\text{9233}} \ \$\frac{52\text{6}}{\text{924}} \ \$\frac{11\text{96}}{\text{922}} \ \$\frac{75\text{9}}{\text{96}} \ \$\text{SNA CLA} \ \$\frac{11\text{9224}}{\text{9224}} \ \$\frac{71\text{96}}{\text{96}} \ \$\text{CLL} \ \$\text{9225} \ \$\frac{1737}{\text{765\text{9}}} \ \$\text{SNA CLA} \ \$\frac{10\text{9227}}{\text{9233}} \ \$\frac{5275}{\text{5}} \ \$\text{JMP LDR} \ \$\text{CLL} \ \$\text{9233} \ \$\frac{1342}{\text{9233}} \ \$\frac{1342}{\text{9233}} \ \$\frac{1342}{\text{9234}} \ \$\frac{1737}{\text{1737}} \ \$\text{TAD C3} \ \$\text{9CAVOT} \ \$\frac{11\text{NITIALIZE COUNTER}}{\text{9233}} \ \$\frac{1346}{\text{9345}} \ \$\text{9345} \ \$\text{AND MASK77} \ \$\frac{10\text{FRIP CHARACTER}}{\text{ARACTER ADDRESS}} \ \$\frac{1240}{\text{9240}} \ \$\frac{2422}{\text{90\text{900}} \ \$\text{MARK} \ \$\text{9} \ \$\text{9241} \ \$\frac{175\text{9}}{\text{9242}} \ \$\frac{175\text{9}}{\text{9243}} \ \$\frac{175\text{9}}{\text{9244}} \ \$\frac{175\text{9}}{\text{9245}} \ \$\frac{1747}{\text{9245}} \ \$\text{DCA PUND} \ \$\text{CLA CLA} \ \$\text{9247} \ \$\frac{1747}{\text{925}} \ \$\frac{3343}{\text{9343}} \ \$\text{DCA CHARI} \ \$\frac{1747}{\text{9255}} \ \$\frac{3343}{\text{9343}} \ \$\text{DCA CHARI} \ \$\frac{1747}{\text{9255}} \ \$\frac{7012}{\text{812}} \ \$\text{RTR} \ \$\text{RTR} \ \$\text{9255} \ \$\frac{7012}{\text{9345}} \ \$\frac{7012}{\text{818}} \ \$\text{AND MASK77} \ \$\frac{7\text{REMOVE 2ND VECTOR}}{\text{9256}} \ \$\frac{7012}{\text{9256}} \ \$\frac{7042}{\text{9467}} \ \$\text{MS} \ \$\text{DMS PUNCH} \ \$\text{PUNCH 1ST VECTOR} \ \$PUNCH					/ IS II CR
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	Ø257	1343		TAD CHARI	



Ø26Ø	Ø345		A > 10	
Ø261	•		AND MASK77	,
,	4267		JMS PUNCH	PUNCH 2ND VECTOR
Ø252	2347		ISZ PUND	
Ø263	2344		ISZ VCNT	
Ø264	5246		JMP PUCH	
Ø265	5642		JMP I MARK	
Ø266	7ØØØ		NOP	
Ø267	ØØØØ	PUNCH,	ø	PUNCH ROUTINE
Ø27Ø	6ø21		PSF	
Ø271	527Ø		JMP1	
Ø272	6ø26		PLS	
Ø273	72,ØØ		CLA	
Ø274	5567		JMP I PUNCH	
Ø275	73ØØ	LDR,	CLA CLL	/PRODUCE LEADER
Ø276	1332		TAD CTRI	, Cool Elinber
Ø277	3334		DCA CTR2	
Ø3ØØ	1333	AGN,	TAD BLK	
Ø3Ø1	4267	,	JMS PUNCH	
Ø3Ø2	2334		ISZ CTR2	
ø3ø3	53ØØ		JMP AGN	
0304	6Ø16		6Ø16	
Ø3Ø5	4325	CON,	JMS READ	
Ø3Ø6	3353		DCA DIG	
Ø3Ø7	1353		TAD DIG	/IS IT A SPACE?
Ø31Ø	765Ø		SNA CLA	/ IS IT A SPACE!
Ø311	5313		JMP .+2	YES INCREMENT SP COUNT
Ø312	5322		JMP TROL	/ TES INCREMENT SP COUNT
Ø313	2351		ISZ SPCNT	
Ø314	7,000		NOP	
Ø315	73ØØ		CLA CLL	
Ø316	1352		TAD M5Ø	
Ø317	1351		TAD SPCNT	
Ø32Ø	765ø		SNA CLA	
Ø321	74Ø2		HLT	SDACE COUNTY Ed
Ø322	1353	TROL,		/SPACE COUNT = 50 HLT
Ø323	4267	INOL,	TAD DIG	
0324	53Ø5		JMS PUNCH JMP CON	
0325	ØØØØ	READ,		/DEAD CLIDE CLIDE
Ø326	6011	READ,	Ø	/READ SUBROUTINE
Ø327	5325		RSF	
Ø33Ø	6Ø16		JMP1	
Ø331	5725		6Ø16	
Ø332		CTDI	JMP! READ	
Ø333	7672 gggg	CTR1,	-1ø6	
Ø334	,ØØØØ ØØØØ	BLK,	Ø	
	ØØØØ	CTR2,	Ø	
Ø335	74Ø3	MODE,	-375	
Ø336	1400	BUFF,	1400	
Ø377 Ø34Ø	ØØØØ	CHAR,	Ø	
Ø34Ø Ø341	7563	M215,	-215	
,0341	7566	M212,	-212	



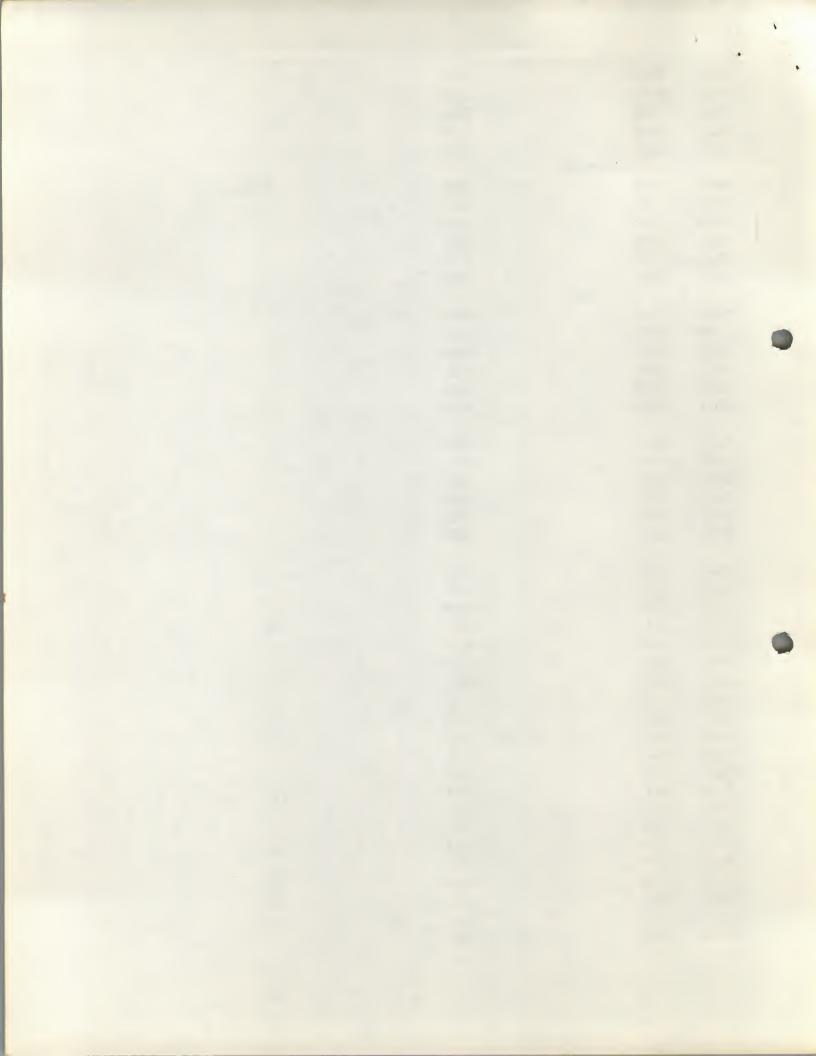
Ø342	7775	C3,	-3	
Ø343	ØØØØ	CHARI	ø	
Ø344	ØØØØ	VCNT,	ø	
Ø345	ØØ77	MASK77,	77	
ø346	Ø72Ø	SOC,	Ø72Ø	
Ø347	ØØØØ	PUND,	ø	
Ø35Ø	ØØØØ	MKAD	ø	
Ø351	ØØØØ	SPCNT,	ø Ø	
Ø352	773Ø	M5Ø,	~5ø	
Ø353	ØØØØ	DIG,	ø	
,0030	pppp	010,	PAUSE	
		*403	171002	
Ø4Ø3	ØØØØ	1,00	ØØØØ	
Ø4Ø4	ØØØØ		ØØØØ	
Ø4Ø5	ØØØØ		ØØØØ	
Ø4Ø6	7611		7611	/A
3407	1111		1111	//\
Ø41Ø	76ØØ		76ØØ	
Ø411	7745		7745	/B
Ø412	4545		4545	/ 6
Ø413	3200		32ØØ	
Ø414	3641		3641	/c
Ø415	4141		4141	/ C
Ø416	22,00		22ØØ	
Ø417	7741		7741	/D
Ø42Ø	4122		4122	/ 0
Ø421	1400		1400	
Ø422	7745		7745	/E
Ø423	4545		4545	/ [
Ø424	41øø		41øø	
Ø425	77Ø5		77Ø5	/ F
Ø426	Ø5Ø5		ø5ø5	/ 1
Ø427	Ø1øø		Ø1øø	
0430	7641		7641	/G
Ø431	4151		4151	/ 0
Ø432	72ØØ		72øø	
Ø433	771ø		771Ø	/H
Ø434	ıøıø		ıøıø	/
Ø435	77ØØ		77ØØ	
Ø436	4141		4141	/1
Ø437	7741		7741	, .
0440	41,00		41,ØØ	
Ø441	2,04,0		2Ø4Ø	/ J
Ø442	4137	•	4137	, 3
Ø443	Ø1ØØ		Ø1ØØ	
Ø444	771Ø		771Ø	/K
Ø445	2442		2442	/
Ø446	ØlØØ		Ø1ØØ	
Ø447	774Ø		774Ø	/L
Ø45Ø	4,04,0		4Ø4Ø	, 2
Ø451	4ØØØ		4ØØØ	
,	ماحاحا		مرمرم.	



Ø452	77Ø1	<i>77,</i> Ø1	/M
Ø453	Ø6Ø1	Ø6Ø1	
Ø454	77ØØ	77ØØ	
Ø455	77Ø2	77ø2	/N
Ø456	Ø41Ø	Ø41Ø	
Ø457	77ØØ	77ØØ	
Ø46Ø	3641	3641	/0
Ø461	4141	4141	•
Ø462	36ØØ	36ØØ	
Ø463	7711	7711	/P
Ø464	1111	1111	,
Ø465	Ø6,ØØ	Ø6ØØ	
Ø466	3641	3641	/Q
Ø467	5136	5136	, –
Ø47Ø	4ØØØ	4,ØØØ	
Ø471	7711	7711	/R
Ø472	1131	1131	/ 13
Ø473	46ØØ	46ØØ	
Ø474	2245	2245	/s
Ø475	5121	5121	/ 3
Ø476	Ø2ØØ	Ø2ØØ	
Ø477	ØlØl	ø1ø1	/_
Ø5ØØ	77Ø1	7701	/T
Ø5Ø1	ØIØØ	77Ø1	
Ø5Ø2		Ø1ØØ	/1.1
	374Ø	374Ø	/U
Ø5Ø3	4Ø4Ø	4Ø4Ø	
Ø5Ø4	37ØØ	37ØØ	/> /
Ø5Ø5	172Ø	172Ø	/V
Ø5Ø6	4020	4020	
Ø5Ø7	17ØØ	1 <i>7</i> ØØ	
Ø51Ø	772Ø	772Ø	/W
Ø511	142Ø	1420	
Ø512	77ØØ	77ØØ	
Ø513	6112	6112	/x
0514	Ø412	Ø412	
Ø515	61,00	61ØØ	
Ø516	171ø	1710	/Y
Ø517	5Ø5Ø	5Ø5Ø	
Ø52Ø	77ØØ	77ØØ	
Ø521	4161	4161	/Z
Ø522	5145	5145	
Ø523	4300	43,00	
Ø524	ØØ77	ØØ77	/r
Ø525	4141	4141	
Ø525	ØØØØ	ØØØØ	
Ø527	7777	7777	/
Ø53Ø	7777	7777	
Ø531	77ØØ	77ØØ	
Ø532	ØØ41	ØØ41	/]
Ø533	4177	4177	, ,
Ø534	ØØØØ	øøøø	
Ø535	Ø4Ø2	Ø4Ø2	/ 1
,	/- /	7772	/ 1



Ø536	77Ø2		77Ø2	
Ø537	Ø4ØØ		Ø4ØØ	
Ø54Ø	ØØØØ		ØØØØ	
Ø541	ØØØØ		ØØØØ	
Ø542	ØØØØ		ØØØØ	
p3 12	ρρρρ	*542	ρομορο	
Ø542	ØØØØ	342	ØØØØ	/CDA CE
Ø543	ØØØØ			/SPACE
Ø544	ØØØØ		ØØØØ	
Ø545	ØØØØ		ØØØØ	
Ø546	57ØØ		ØØØØ	
Ø547			57ØØ	/.
0347	ØØØØ	4101	ØØØØ	/:
dida	dddd	*6Ø4	4444	
Ø6Ø4	ØØØØ		ØØØØ	
Ø6Ø5	ØØØØ		ØØØØ	
Ø6Ø5	ØØØØ		ØØØØ	
Ø6Ø7	ØØØØ		ØØØØ	
Ø61Ø	ØØØØ		ØØØØ	
Ø611	ØØØØ		ØØØØ	
,		*612		
Ø612	ØØØ4		øøø4	/-
Ø613	Ø4Ø4		Ø4Ø4	,
Ø614	ØØØØ		ØØØØ	
Ø615	4,0,0,0		4,00,0	/.
Ø616	ØØØØ		øøøø	, -
Ø617	ØØØØ		ØØØØ	
		*621		
Ø621	4Ø2Ø		4Ø20	//
Ø622	1øø4		1øø4	/ /
Ø623	Ø2ØØ		Ø2ØØ	
Ø624	3641		3641	/ø
Ø625	4141		4141	7,6
Ø626	36ØØ		36ØØ	
Ø627	ØØ42		ØØ42	/1
Ø63Ø	774Ø		774Ø	/ 1
Ø631	ØØØØ		ØØØØ	
Ø632	4261		4261	/2
Ø633	5145		5145	/2
Ø634	4200		42ØØ	
Ø635	6,041		6Ø41	/2
Ø636	4547			/3
Ø637	75øø		4547 7500	
Ø64Ø	1,014		75ØØ	/ .
Ø641			1014	/4
Ø642	1277		1277	
	1,ØØØ		1,000	
Ø643	4645		4645	/5
Ø644	4545		4545	
Ø645	3,0,0,0		3,ØØØ	



Ø646	3651		3651	/6
Ø647	5151		5151	/0
Ø65Ø	3100		31ØØ	
Ø651	4121		4121	/7
Ø652	11ø5		11Ø5	//
Ø653	Ø3ØØ		ø3øø	
Ø654	2651		2651	/8
Ø655	5151		5151	/ 0
Ø656	26,ØØ		26ØØ	
Ø657	Ø611		Ø611	/9
Ø66Ø	1111		1111	/ 7
Ø661	77ØØ		77øø	
/= 00 .	, , , , , ,	¢.	PAUSE	
			/CHARACTER TA	ARIF
		*72Ø	/ CHARACTER I	TULL
Ø72Ø	Ø4Ø3	SOCT,	Ø4Ø3	/ @
Ø721	Ø4Ø6	333.7	Ø4Ø6	/A
Ø722	Ø411		Ø411	/B
Ø723	Ø414		Ø414	/C
Ø724	Ø417		Ø417	/D
Ø725	Ø422		Ø422	/E
Ø726	Ø425		Ø425	/F
Ø727	Ø43Ø		Ø43Ø	/G
Ø73Ø	Ø433		Ø433	/G /H
Ø731	Ø436		Ø436	/n /i
9732	Ø441		Ø441	/J
Ø733	Ø444		Ø444	/ S / K
Ø734	Ø447		Ø447	/L
Ø735	Ø452		Ø452	/M
Ø736	Ø455		Ø455	
Ø737	Ø46,Ø		Ø46Ø	/N /O
Ø74Ø	Ø463		Ø463	/P
Ø741	Ø466		Ø466	
Ø742	Ø471		Ø471	/Q /R
Ø743	Ø474		Ø474	/s
Ø744	Ø477		Ø477	/T
Ø745	Ø5Ø2		ø5ø2	/u
0746	Ø5Ø5		Ø5Ø5	/ V
Ø747	Ø51Ø		Ø51Ø	/w
Ø75Ø	Ø513		Ø513	/ v / x
Ø751	Ø516		Ø516	/Ŷ
Ø752	Ø521		Ø521	/ T
Ø753	Ø524		Ø524	/1.
Ø754	Ø527		Ø527	/ /
Ø755	Ø531		Ø531	/ 1
Ø756	Ø534		Ø534	/1
Ø757	Ø537		Ø537	//
Ø76Ø	Ø542		Ø542	/SPACE
Ø761	Ø545		Ø545	/!
			/	/ •



Ø 55Ø	Ø55Ø	/"
		/#
		/\$
		/%
		/&
		/'
	05/2	/(
		/)
		/*
	Ø6Ø4	/+
Ø6Ø7	Ø6Ø7	/,
Ø612	Ø612	1.
Ø615	Ø615	/:
Ø621	Ø621	//
Ø624	Ø624	/ø
Ø627	Ø627	/1
Ø632	Ø632	/2
Ø635	Ø635	/3
Ø64Ø		/4
Ø643	Ø643	/5
Ø646	Ø646	16
Ø651	Ø651	17
Ø654	Ø654	/8
Ø657	Ø657	/9
	Ø615 Ø621 Ø624 Ø627 Ø632 Ø635 Ø64Ø Ø643 Ø646 Ø651	Ø553 Ø556 Ø561 Ø561 Ø564 Ø564 Ø567 Ø567 Ø572 Ø572 Ø575 Ø6Ø1 Ø6Ø1 Ø6Ø1 Ø6Ø7 Ø6Ø7 Ø612 Ø612 Ø615 Ø615 Ø621 Ø621 Ø627 Ø627 Ø632 Ø632 Ø643 Ø643 Ø643 Ø643 Ø646 Ø646 Ø651 Ø651 Ø654 Ø654



Α	
G	
N	Ø3øø
BLK	Ø333
BUFF	ø336
CHAR	Ø337
CHAR1	Ø343
CON	Ø3Ø5
CTR1	Ø332
CTR2	Ø334
C3	Ø342
DIG	Ø353
LDR	Ø275
MARK	Ø242
MASK77	Ø345
MKAD	Ø35Ø
MODE	Ø335
M212	Ø341
M215	Ø34Ø
M5Ø	Ø352
NEXT	Ø2Ø6
PUCH	Ø246
PUNCH	Ø267
PUND	Ø347
READ	Ø325
SOC	Ø346
SOCT	Ø72Ø
SPCNT	Ø351
START	Ø2ØØ
TROL	Ø322
VCNT	Ø344

